

REMARKS**Claim Rejections Under 35 U.S.C. § 103**

Claims 1, 2 and 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *She* in view of *Chang* (U.S. Patent Application No. 2002/0086548). Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *She/Chang* in view of *Akatsu*. Applicant respectfully traverses these rejections.

Claims 3, 8 – 37, and 48 have been canceled without prejudice. Claim 1 has been amended to more clearly claim that subject matter that Applicant regards as the invention.

She discloses a SONOS-type flash memory. *She* further discloses using a high-k dielectric material such as HfO₂ and ZrO₂. However, *She* teaches the use of chemical vapor deposition to form the trapping layer. Applicant claims an oxidized high-k trapping layer.

As is well known in the art, there is a structural difference between the two types of layers. The oxidized layer of the present invention is structurally of a higher quality, have a more uniform thickness, and stoichiometric in composition. Chemical vapor deposited layers do not have this type of structure.

Chang discloses a method for forming a gate dielectric layer. The Examiner states that paragraph 0029 teaches using a low-temperature oxidation method. However, this paragraph states that the “zirconium oxide layer is formed sputtering method...” Additionally, *Chang* states in this paragraph that, for that embodiment, the sputtering provided a lower process temperature and the thermal budget is lower than in a thermal oxidation method. Paragraph 0021 of *Chang* discusses the sputtering system of Figure 2 as well. *Chang*, therefore, teaches away from an oxidized high-k trapping layer as claimed in the amended claims.

Akatsu discloses a NOR and NAND type EEPROM device. *Akatsu*, however, neither teaches nor suggests Applicant’s invention as claimed in the amended claims.

Even if it were obvious to combine *She* with *Chang* and/or *Akatsu*, and Applicant maintains that it is not, the combination would still not anticipate Applicant’s invention as claimed in the amended claims.

Amendments to the Specification

The amendments to paragraph 25 were made to correct typographical errors and do not present new matter. The word “oxide” was erroneously used in place of “nitride”. This is an obvious typographical error since paragraph 19 at line 4 discusses an “oxide – nitride – high k composite” and the instant paragraph 25 at line 1 also states that “Embodiments of this category of oxide – nitride – high-k dielectric layers nanolaminates include: …” Therefore, the nanolaminates following this phrase would have been expected to be “oxide – nitride – high-k” nanolaminates and not “oxide – oxide – high-k” nanolaminates.

RESPONSE TO NON-FINAL OFFICE ACTION

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Serial No. 10/808,059

Attorney Docket No. 400.285US01

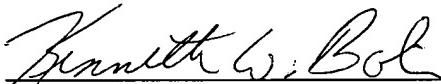
Title: NROM MEMORY DEVICE WITH HIGH-PERMITTIVITY GATE DIELECTRIC FORMED BY THE
LOW TEMPERATURE OXIDIZATION OF METALS

CONCLUSION

For the above-cited reasons, Applicant respectfully requests that the Examiner allow the claims of the present application. If the Examiner has any questions or concerns regarding this application, please contact the undersigned at (612) 312-2211. No new matter has been added and no additional fee is required by this amendment and response.

Respectfully submitted,

Date: 10/11/05



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